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# THE PROCEEDINGS

OF THE

# ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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### NOTICE OF POSSIBLE SUSPENSION OF THE RULES OF NOMENCLATURE IN CERTAIN CASES (A.(n.s.)1)

In accordance with a Resolution adopted by the International Zoological Congress at their Ninth Meeting held at Monaco in 1913, prescribing that not less than one year's notice is to be given by the International Commission on Zoological Nomenclature of all applications received for the " Suspension of the Rules," the attention of the zoological profession is hereby invited to the fact that requests for the " Suspension of the Rules " have been received by the Commission in the undermentioned cases :—

(*a*) ECHINODERMATA.—*Diadema* Humphreys, 1797 (type *Echinometra setosa* Leske, 1778) to be added to the Official List of Generic Names (see Mortensen, 1937, *Ann. Mag. nat. Hist.* (10) **19** : 463–469) (reference Z.N. (S.) 52).

(*b*) INSECTA, Neuroptera.—To be added to the Official List of Generic Names with types as shown in brackets :—*Hemerobius* Linnaeus, 1758 (*Hemerobius humulinus* Linnaeus, 1758); *Chrysopa* Leach, 1815 (*Hemerobius perla* Linnaeus, 1758) (see Cowley and others, 1937, *Generic Names of British Insects*, Pt. 4) (reference Z.N. (S.) 42).

(*c*) INSECTA, Lepidoptera.—To be added to the Official List of Generic Names with the type as shown in brackets :—*Actinote* Hübner, [1819] (*Papilio thalia* Linnaeus, 1758) (see Hemming, 1936, *Proc. R. ent. Soc. Lond.* (B) **5** : 56–57) (reference Z.N. (S.) 63).

(*d*) REPTILIA.—*Bitis* Gray, 1842 (type *Vipera* (*Echidna*) *arietans* B. Merrem, 1820) to be added to the Official List of Generic Names, and *Cobra* Laurent, 1768, to be suppressed (see Stejneger, 1936, *Copeia*, **3** : 140) (reference Z.N. (S.) 121).

2. In adopting the Resolution referred to above, the International Zoological Congress expressly stated that their object was thereby to render it possible for zoologists, particularly specialists in the group in question, to present to the Commission arguments for or against the suspension of the rules proposed. Any such representations should be furnished to the Secretariat to the Commission (British Museum (Natural History), Cromwell Road, London, S.W.7) as soon as possible and in any case within one year of this day's date. Every such communication should be clearly marked with the Commission's reference number as given above.

By Order of the Commission

(Signed) Francis Hemming.
*Secretary to the Commission.*

*Secretariat of the Commission,*
*British Museum (Natural History),*
*Cromwell Road, London, S.W.7.*
*27th June*, 1939.

# DESCRIPTIONS OF SEVERAL SPECIES OF ANTS (HYMENOPT.) TAKEN BY DR. O. W. RICHARDS IN BRITISH GUIANA

By Horace Donisthorpe, F.Z.S., F.R.E.S.

(*Department of Entomology, British Museum (Nat. Hist.)*)

## Myrmicinae Lepeletier.

### Dacetini Forel.

**Rhopalothrix (Rhopalothrix) redux** sp. n.

♂. Head and thorax black, petiole, post-petiole, and gaster dark blackish-brown, antennae, mandibles and legs light brown. *Head* subquadrate, round from behind eyes, posterior border rounded, vertex higher than rest of head, somewhat rugosely punctured and longitudinally striate, the striae forming raised ridges behind eyes; *clypeus* transverse, convex, anterior border rounded, anterior angles small, sharp; *mandibles* small, external border rounded, masticatory border furnished with 7 or 8 small sharp teeth, apical tooth slightly longer; *antennal carinae* small, but somewhat projecting; *frontal furrow* indistinct; *eyes* round, projecting, situated in front of sides of head; *ocelli* moderate; *antennae* very long, 13-jointed, *scape* short, dilated on internal border, *funiculus* with first joint very short, rounded, following joints elongate, of equal breadth, last joint the longest, and slightly narrowed to apex. *Thorax* convex, similarly but more strongly punctured than head; *pronotum* transverse, rounded posteriorly, anterior angles not prominent; *mesonotum* large, convex, rounded, with a deep shining furrow between it and scutellum; *scutellum* rather flat, narrowed posteriorly; *epinotum* flat, furnished with two strong projecting teeth, deeply excised between them, declivity abrupt and considerably hollowed out; *petiole* with a long peduncle which is furnished with a small tooth on each side before node, *node* sloping anteriorly, dorsal surface slightly hollowed out, shining but finely, closely, and distinctly punctured; *post-petiole* transverse, broader than petiole, and more finely punctured; *gaster* oval, very smooth and shining. *Wings* very dusky, covered with small short scattered hairs, *pterostigma* and *veins* dark brown; one closed *cubital cell*, and a long, practically closed, *radial cell*. *Legs* long. *Long.* 3·3 mm.

British Guiana: Kaieteur Savannah, 5.ix.37. Described from a single ♂. Type in British Museum.

*R. redux* is almost certainly a new species; no other species has been recorded from British Guiana, and it is very doubtful that it belongs to any of the few species known from elsewhere in S. America

Only three males of this genus have been described hitherto: *R. gravis* Mann (1922) Honduras; *R. procera* Emery subsp. *samoana* Santschi (1928) Samoa; *R. kokodensis* Donis. (1935) New Guinea. It is, of course, not one of these.

## Dolichoderinae Forel.

### Tapinomini Emery.

**Iridomyrmex mazaruni** sp. n.

☿. Dirty brownish-yellow, head darker above, gaster blackish with light yellow margins to the segments, legs somewhat lighter, shining, very finely alutaceous, and furnished with very small raised scattered tubercules, whole body covered with scattered outstanding yellow hairs.

*Head* longer than broad, broadest across middle of eyes (the sides of the head being visible on outer side of eyes when viewed from above), evenly rounded posteriorly, gradually narrowed anteriorly, posterior border slightly excised; *clypeus* broad convex, anterior border apparently straight, but when viewed from in front slightly sinuate at sides and just before centre, slightly longitudinally striate; *mandibles* large, triangular, with scattered punctures furnished with a number of not very sharp teeth on terminal and internal border, apical tooth being the longest; *frontal area* indistinct; *frontal furrow* short and very faint; *frontal carinae* widely separated, with a narrow raised ridge slightly convergent posteriorly; *eyes* large, oblong oval, convex, with rather large facets, situated in middle above the sides of the head; *antennae* long, scape extending for about $\frac{1}{3}$ of its length beyond posterior angle of head, *funiculus* gradually and slightly thickened to apex, first and last joints the longest and about equal, the rest of equal length. *Thorax*: *Pronotum* about as long as broad, broadest behind middle, rounded at sides, narrowed anteriorly, forming a neck; *mesonotum* slanting towards the deeply impressed suture between it and epinotum; *epinotum* nodiform, higher than pro- and mesothorax, dorsal surface longer than broad, narrowly margined at sides and base, the latter rounded and forming two small projections when viewed from the side, longer than declivity, declivity abrupt, slightly concave; *petiole* bluntly pointed, rounded anteriorly, slightly concave and narrowly margined posteriorly, not nearly as high as epinotum, scarcely as high as base of gaster; *gaster* short oval; *legs* long. *Long.* 4·2 mm.

♀. Colour, hairiness, sculpture, etc., much as in ☿. *Mandibles* more massive, teeth blacker; *clypeus* with striation more marked, and also those above eyes; *frontal area* distinct, *frontal furrow* longer and more marked; *ocelli* present. Projections to *epinotum* more marked; *gaster* longer and more voluminous. *Long.* 6·5 mm.

British Guiana: Mazaruni Clearing. Described from a deälated female and many workers taken by O. W. Richards in an old *Polybia* nest. 17.ix.37. Type and ♀ type in British Museum. This very distinct species is unlike any other S. American *Iridomyrmex.*

## Formicinae Lepeletier.

### Plagiolepidini Forel.

#### **Acropyga (Rhizomyrma) borgmeieri** sp. n.

♂. Pale brownish-yellow, head somewhat darker, legs and antennae lighter, very finely punctured, shining, clothed with decumbent pubescence, especially on the gaster, and longer and shorter, suberect hairs. *Head* transverse, evenly rounded from behind eyes to posterior border, posterior border very slightly sinuate in centre; *clypeus* transverse, convex, anterior border evenly rounded; *frontal area* distinct; *frontal furrow* shallow, reaching median ocellus; *eyes* large, hemispherical, projecting, occupying nearly half the side of the head; *ocelli* moderate; *mandibles* slender, arched, with three teeth to the masticatory border; *antennae* 12-jointed, fairly long, *scapes* extending a little beyond posterior angles of head, *funiculus* with 1st joint triangular, about as broad as long, broader than joints 2–7, which are transverse, the rest longer, last joint a little longer than the two preceding taken together. *Thorax* convex; *mesonotum* rounded anteriorly, overreaching the *pronotum*; *scutellum* transverse, slightly convex; epinotum convex, rounded without marked declivity; *petiole* nodiform, with a blunt rounded point above, slightly convex anteriorly, concave posteriorly and narrowly margined; *gaster* with genitalia somewhat elongate; external *genitalia* very large and prominent, *stipes* long, curved and furnished with a triangular hook, *volsellae* short and hooked, *sagittae* narrow with blunt turned-up

apex. *Wings* translucent, covered with minute hairs, *pterostigma* and *veins* pale brownish-yellow, no *discoidal cell*, one *cubital cell* and closed *radial cell*. *Long.* 2·2 mm.

British Guiana: Mazaruni Clearing. Described from two males. 14.viii.37. Type in British Museum.

In my paper on *Acropyga* (*Rhizomyrma*) *robae* Donis. (1936), I gave a table including all the known species of neotropical Rhizomyrmae, with the date of the description of the species, patria, length, number of joints of the antennae and teeth to the mandibles in the workers, females, and males. *R. borgmeieri* comes nearest to *R. rutgersi* Bunzli (1935) Surinam, and *R. dubita* Wheeler & Mann (1914) Haiti, with 12 joints to the antennae and 3 teeth to the mandibles in the male. It is considerably smaller than the former, and somewhat larger than the latter, besides differing in other particulars. Named in honour of Father Borgmeier who has described several species of *Rhizomyrma*.

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## Book Notice.

*Nomenclator Zoologicus.* A list of the names of genera and subgenera in Zoology from the tenth edition of Linnaeus 1758 to the end of 1935. Edited by S. A. Neave. 4 vols. 8vo. London (The Zoological Society of London). 1939→. £8 8*s*. Vol. 1. A–C, pp. xiv + 958.

Five years ago Dr. S. A. Neave approached the Zoological Society of London and drew attention to the great difficulties in which systematists found themselves in the absence of a complete and up-to-date list of the generic names used in Zoology.

The result of the approach is the appearance of the first of the four volumes prepared under the editorship of Dr. Neave in the Publication Office of the Imperial Institute of Entomology at 41 Queen's Gate. The remaining volumes of the work are promised at six-monthly intervals and the cost of the whole is 8 guineas.

The complete work will contain over 225,000 entries, of which over one-half appertain to the Insecta. In the preparation of the work Dr. Neave has been assisted by the staff of the Zoological and Geological Departments of the British Museum.

For each name included the original reference to its first use is given, and for the period after Dr. Sherborn's *Index Animalium*—i.e. 1851–1935—many of the references have been checked with the original.

An important feature of the work is the inclusion of some 18,000 cross-references to names proposed to replace homonyms.

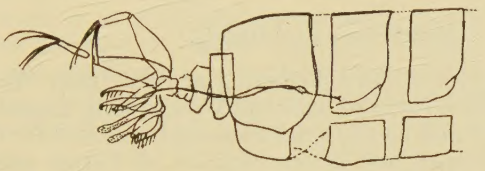
# THE OCCURRENCE OF *PHLEBOTOMUS CLYDEI* IN AFRICA (DIPT.)

By D. J. Lewis, F.R.E.S., and R. Kirk.

(*From the Stack Medical Research Laboratories, Khartoum.*)

During a survey of sandflies in the kala-azar areas of the Anglo-Egyptian Sudan in 1938 *Phlebotomus clydei* Sinton was found in several places in the Blue Nile and Kassala provinces. This species was described by Sinton (1928) from specimens from Waziristan, and Sinton (1932) subsequently recorded that it was widely distributed in the plains of India. The occurrence of this species in Africa is of particular interest in view of Theodor's (1938) observations on the close correspondence between the Indian and East African sandfly faunas.

African females hitherto examined have slightly fewer pointed buccal teeth than the type. The following notes show other small differences from the type with regard to the degree of variation in relative measurements. Where exact figures are given they refer to ten specimens in each case.



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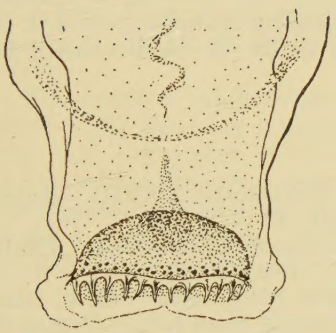

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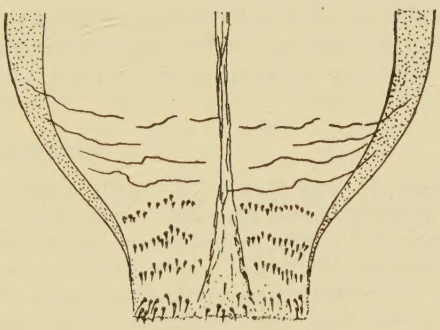

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Figs. 1–3.—*Phlebotomus clydei* Sinton from the Sudan: 1, posterior abdominal segments of male; 2, buccal armature of female; 3, pharyngeal armature of female.

## *Male* P. clydei *from the Sudan.*

Buccal cavity, pharynx, antenna, palp and hind leg with structure and relative measurements as in type. Wing: about four times as long as broad. Ratio $\alpha$ over $\beta$ 0·55 to 0·97, $\delta$ over $\alpha$ 0·06 to 0·79, $\beta$ over $\gamma$ 0·76 to 1·09 and $\beta$ over $\epsilon$ 0·63 to 0·94. Terminalia: approximately as in type. Proximal segment of superior clasper 2·1 to 2·5 times as long as distal segment. Two of the distal segments of the abdomen markedly smaller than those anterior to them (fig. 1).

### *Female* P. clydei *from the Sudan.*

Buccal cavity : resembles that of the type form except that it has only 12 to 14 pointed teeth. The small nodular teeth near the base of the pointed teeth are arranged in two rows, the anterior row being either well defined or merely represented by a few teeth. Pharynx : armature as in type. Length 2·6 to 2·9 times breadth. Antenna : geniculate spine formula as in type. Total length 8·2 to 9·1 times third segment. Palp and hind leg : approximately as in type. Wing : about four times as long as broad. Ratio $\alpha$ over $\beta$ is 0·61 to 0·97, $\delta$ over $\alpha$ 0·14 to 0·61, $\beta$ over $\gamma$ 0·66 to 0·98 and $\beta$ over $\epsilon$ 0·64 to 0·90. Genitalia : spermatheca and post-genital ridge as in type.

### *The relation of* P. clydei *to a species from Agur.*

The male of a species of *Phlebotomus* from Agur, Koalib, Kordofan Province, was described but not named by Theodor (1933). This somewhat resembles *P. clydei* but differs in several points, including the possession of an unarmed pharynx and an intromittent organ with two distinct basal processes. In these respects it resembles the Abyssinian *P. vagus*, recently described by Parrot and Martin (1939), and may be an aberrant individual of this species.

### *Distribution and Habits.*

We have found *P. clydei* at Wad Medani, Um Sunt (near Wad Medani). Managil and Singa in the Blue Nile Province and Wad Arud in Kassala Province. It occurs both in inhabited and uninhabited areas and near and far from rivers. It has been collected in houses and in the burrows of *Vulpes pallida* Cretz., *Gerbillus pygargus* Cuv. and other animals.

Mammalian blood has been found in specimens of *P. clydei* from burrows.

We are much indebted to Professor P. A. Buxton for allowing us to study *P. clydei* at the London School of Hygiene and Tropical Medicine, to Col. J. A. Sinton for lending us the type specimens, and to Dr. R. M. Buchanan for the drawings reproduced in figures 1 to 3.

### References.

Parrot, L., and Martin, R., 1939, Notes sur les Phlébotomes XXVIII.—Autres Phlébotomes d'Éthiopie. *Arch. Inst. Past. Alg.*, **17** : 142–156.

Sinton, J. A., 1928, Notes on some Indian species of the genus *Phlebotomus*. XXIII. *Phlebotomus clydei* n.sp. *Indian J. med. Res.*, **16** : 179–186.

——, 1932, Notes on some Indian species of the genus *Phlebotomus*. XXX. Diagnostic table for the females of the species recorded from India. *Indian J. med. Res.*, **20** : 55–74.

Theodor, O., 1933, Some African Sandflies. *Bull. ent. Res.*, **24** : 537–547.

——, 1936, On African Sandflies.—III. *Bull. ent. Res.*, **29** : 165–173.

# THE EXTERNAL FEATURES OF THE EARLY STAGES OF *SPATHIOPHORA HYDROMYZINA* (FALL.) (DIPT., CORDYLURIDAE)

By J. F. Graham, M.Sc.

Communicated by Dr. Ll. Lloyd, F.R.E.S.

## Introduction.

*S. hydromyzina* is related to the Yellow Dung Fly, *Scatophaga stercoraria* (L.) the life history and habits of which have been described by Cotterell (1920). In the same family the larva of *Hydromyza confluens* Loew, a form highly specialised for life within the petioles of water-lilies, has been considered by Welch (1914) from the bionomic standpoint, whilst Hickman (1935) has described its external features.

*S. hydromyzina* is of interest as the only successful colonist of the sewage bacteria beds amongst the higher Diptera. It abounds there in vast numbers sometimes and the imago is to be found from spring to autumn about all the sewage works in the neighbourhood of Leeds. It preys on the Chironomids and Psychodids which breed in these places, and on suitable days the method of feeding can be readily observed. The victim is stalked, pounced upon, its body wall is rasped away and the contents sucked out. The larva grazes over the medium, devouring the algal and fungal growth. Excess of water causes the larvae to rise to the surface where they preserve their buoyancy by gulping down air into the gut, the anterior part of which always contains some gas. This habit is an adaptation to life in an environment subject to flooding.

The insect is easily reared in captivity by the culture method used by Lloyd (1935) for other sewage insects. A pair taken *in copula* is placed in a tube with a fragment of the algal bed growth *Phormidium*. Eggs are laid on this and as the larvae grow the culture is transferred to a jar with scalded *Phormidium* resting on wet cotton wool. At 15° C. oviposition takes place the second day after mating, and incubation of the egg occupies two or three days. The first ecdysis occurs on the fourth day after eclosion, the second on the tenth day, with pupation about the twenty-third, or twenty-fourth day. At this temperature the pupal period occupies about fourteen days, but the insect appears to overwinter normally as a pupa, since few of other stages can then be found.

## The Egg.

The eggs (fig. 1) are white in colour with a glistening sheen, and a full batch consists of 80–120 laid in rows on the alga. The egg is cylindrical with rounded ends and measures about 0·85 by 0·28 mm. The upper side is almost flat, and bears along its entire length two flanges which protrude almost radially and so appear foreshortened when viewed from above. At the micropylar end they are widely separated, but converge slightly behind. The micropyle lies in a slight depression. The chorion is roughened by minute tubercles in diamond-shaped reticulations.

This egg is smaller than that of the dung fly, and the flanges in the latter are restricted to the anterior end (Cotterell, 1920) the egg being inserted obliquely into the fresh dung. The function of the flanges is to prevent the egg from sinking in semifluid medium, and it may be mentioned that the eggs of *Fannia* (Anthomyidae) are similarly provided.

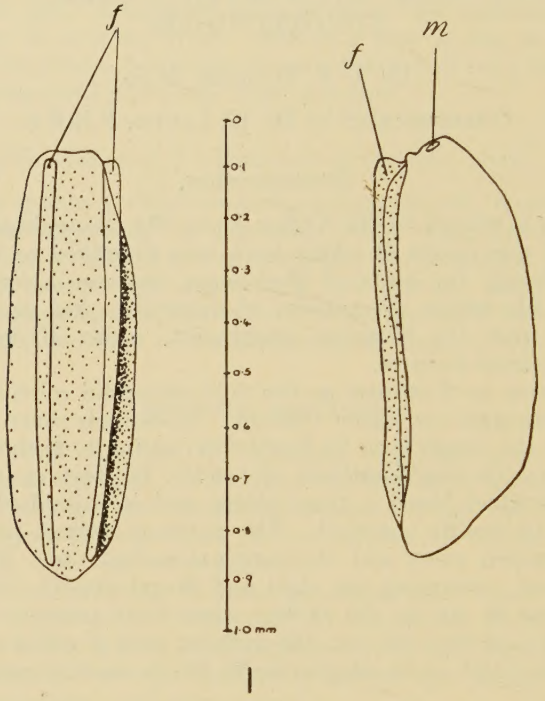


Fig. 1.—The Egg. f = longitudinal flanges; m = micropyle.

## Larva, First Instar.

On hatching the larva measures less than 1·0 mm. in length, but grows to 2·0 mm. before the moult. The head is bilobed ventrally, the groove leading to the mouth. Each lobe bears an apical antenna, which is an acorn-shaped peg on a short base strengthened by a sclerotised ring. Posterior to this the palp consists of a number of papillae grouped on a raised area. Three large and nine small papillae compose one group and two others occur on separate protuberances on its aboral side. The buccal sclerites are without teeth and fairly stout. Anteriorly the intermediate sclerites are broad and twisted, but become more slender towards the pharyngeal sclerites. These are broad, though their posterior arms are more slender than in later instars. Ventrally just behind the mouth there are six transverse rows of very strong spines, relatively long. They are set close together on broad bases and apparently afford a purchase during grazing.

The truncate posterior end of the larva is margined by ten conical lobes. Respiration is metapneustic and the spiracles are large, domed and heavily pigmented. Each dome has an irregular base and its walls are strengthened by irregularly branching rods. The spiracular opening is slightly to one side and its rim carries an inward projection partly dividing the orifice. There are

the usual four peristigmatic glands provided with the fan-like branched processes commonly found in larvae of this type (fig. 2). These are very large and the tips of the branches are finely pointed. They are hydrofuge in nature, probably deriving this property from the secretion of the peristigmatic glands (Keilin, 1917). Cupped together they hold an air bubble when the larva is at the surface of the water, and this may function as a physiological lung when the larva submerges (Wigglesworth, 1934). This special habit again seems adaptive to an environment subject to flooding.

The cuticle in this instar is markedly spinous. The spines of the dorsal and ventral surface are short and stout, but the lateral series are longer and hair-like. In the fifth to the eleventh segments, situated laterally near the front margin, is a group of long strong spines with their points directed to a common centre. The colour of this spinous clothing gives the larva a brown appearance. The first instar larva of the dung fly is much less spinous.

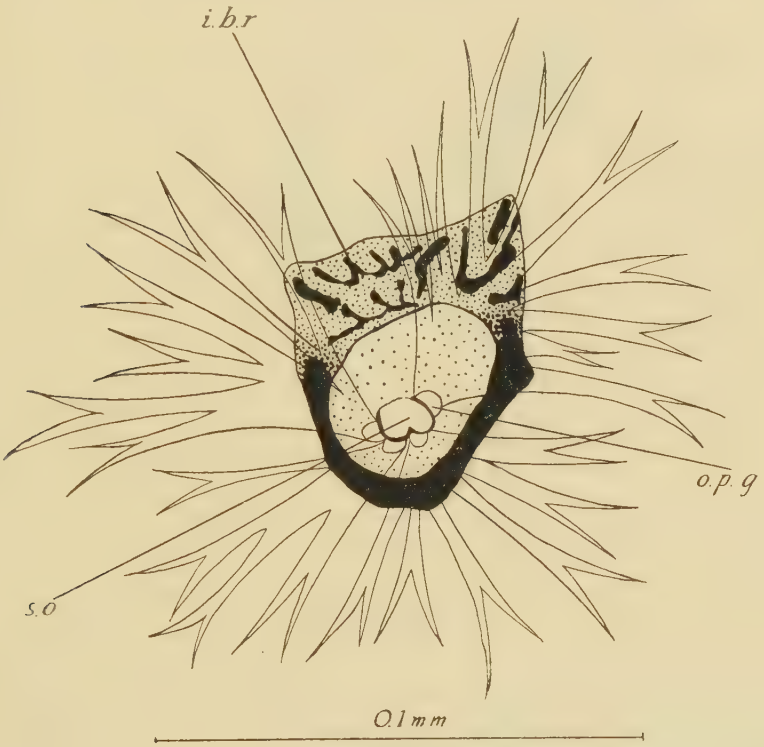


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Fig. 2.—Spiracle of first instar; i.b.r. = irregular branching rods; o.p.g. = opening of peristigmatic gland; s.o. = spiracular opening.

### Larva, Second Instar.

During this stage the larva grows from 2·0 to 4·0 mm. in length. The spinescence becomes much less marked, respiration is amphipneustic and the number of anal lobes increases to twelve.

The head is bilobed ventrally and bears in this region eight rows of strong spines with a sensory papilla making its appearance between the second and third rows. On the antenna a small papilla can be detected on the posterior ventral side of the base. On the palp the large group of papillae becomes surrounded by a chitinous ring. The buccal sclerites bear two rows of teeth, four or five in the inner row and two large ones proximally with two small ones distally in the outer row. The posterior ends of these sclerites are slightly forked and the intermediate sclerites are darkly pigmented and a slender rod lies dorsal to them.

The anterior spiracles are bilobed, each lobe having eight to nine processes. The posterior spiracles protrude less than in the first instar and the branched processes are relatively less developed. The orifice of the spiracle is completely divided.

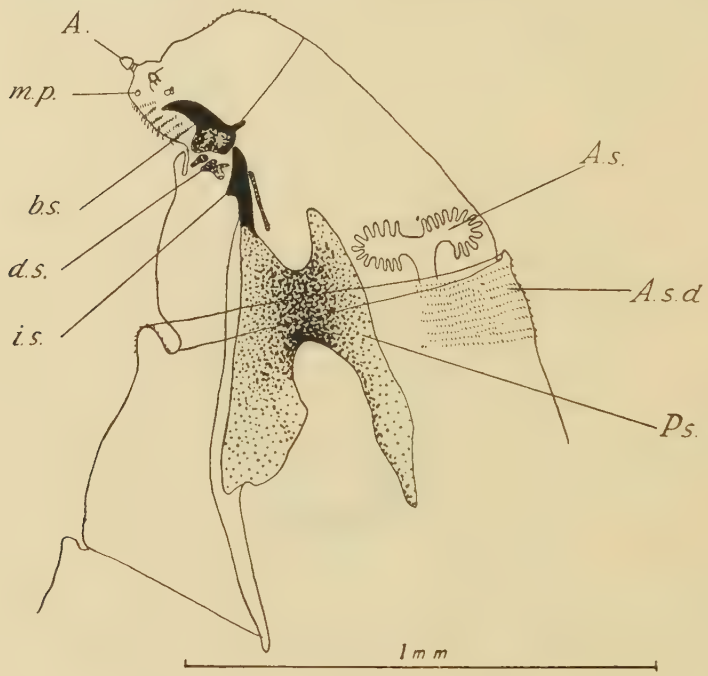


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Fig. 3.—Anterior end of third instar; a = antenna; a.s. = anterior spiracle; s.d. = anterior spines of dorsal region of 2nd segment; b.s. = buccal sclerite; d.s. = dentate sclerite; i.s. = intermediate sclerites; m.p. = maxillary palp; p.s. = pharyngeal sclerite.

## Larva, Third Instar.

During this stage the larva grows from 5·0 to 8·0 mm. The head and sense organs retain their form, but the buccal sclerites are stronger, with longer cutting edges, and without the cleft at the posterior end. The inner cutting edge has eight to ten small teeth and the outer edge bears proximally five large teeth and distally two small ones. The intermediate and pharyngeal sclerites are relatively shorter and stouter than in the second instar (fig. 3).

The digit-like processes on the two arms of the anterior spiracles have increased to about twelve in number. The posterior spiracles have the three openings of oval form and the branched peristigmatic processes are still rather conspicuous structures.

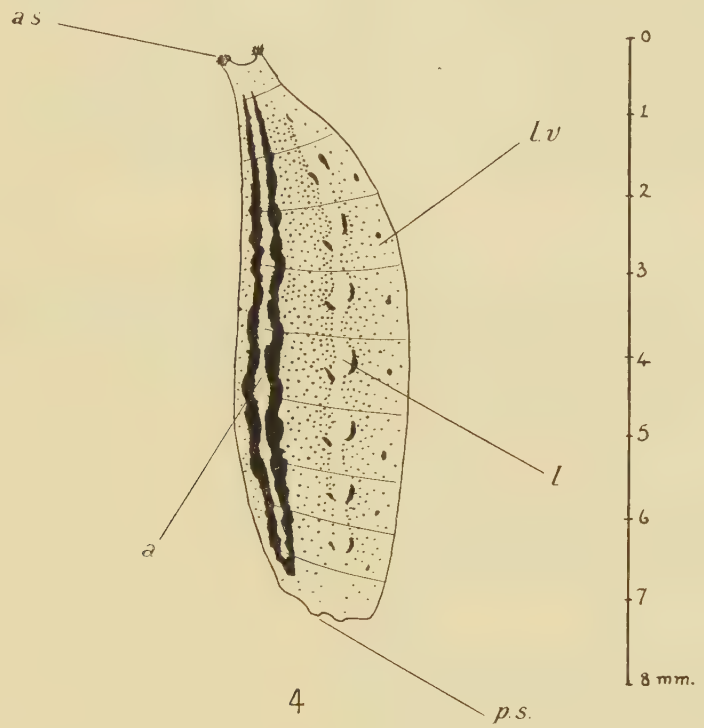


Fig. 4.—The Pupa; a.s. = anterior spiracle; a. = mid-dorsal line; l. = light coloured lateral area; l.v. = light coloured latero-ventral area; p.s. = posterior spiracle.

## Puparium.

The puparium (fig. 4) is cylindrical, tapering anteriorly and truncate behind with the anterior spiracles very conspicuous. It measures 6·0–7·0 mm. in length and its greatest diameter is about 2·0 mm. It is marked dorsally by two lines enclosing an area of lighter colour. Light bands also run along the case laterally and latero-ventrally respectively and contain darker patches in segments five to ten.

## Conclusions.

The distinctive characters of this larva in contrast to those of *S. stercoraria* are as follows :

1. No conspicuous food channels converge to the mouth.
2. It has no locomotory plates on the anterior segments.
3. The dentate sclerites are strongly toothed but almost smooth in *S. stercoraria.*

4. The anterior spiracle lobes have processes on both edges, anterior only in *S. stercoraria.*

5. The peristigmatic processes are much more developed. Cotterell does not mention these in his description and they are in fact only detectable with some difficulty in the dung fly.

6. The dung fly larva does not possess the capacity for holding bubbles of air at the posterior spiracles though Cotterell mentions that in its earlier stages it has the power of clinging at the surface film with these structures when the dung is waterlogged. It is not otherwise buoyant and does not swallow air into its stomach. These two faculties in the larva of *S. hydromyzina* must be regarded as of an adaptive nature and it is possibly owing to their development that the insect has been able to colonise the bacteria beds.

## Summary.

The early stages and feeding habits of *Spathiophora hydromyzina* (Fall.), (Cordyluridae) are described and points of difference from the allied *Scatophaga stercoraria* are noted. The fly has colonised the beds of sewage works and features in the respiration and buoyancy maintenance of the larva are mentioned as possibly contributing to a successful life in this environment.

## Acknowledgements.

Acknowledgements are due to Dr. Ll. Lloyd and to Prof. E. A. Spaul for various help during this work, also to Mr. J. T. Thompson, Manager of the Knostrop (Leeds) Sewage Works for assistance in obtaining material.

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# NEW SPECIES AND SUBSPECIES OF HESPERIIDAE (LEPIDOPTERA) OBTAINED BY HERR H. HÖNE IN CHINA IN 1930–1936

By W. H. Evans, C.S.I., C.I.E., D.S.O., F.R.E.S.

*Note.* All types, unless otherwise stated, are in the Bonn University Museum. Paratypes of all the species are in the British Museum (Natural History).

### 1. **Coladenia hoenei** sp. n.

Type ♂ Tapai Shan, Tsinling, S. Shensi, 1700 metres, 26.v.1935.

Appertains to the *vitrea* (Leech) group of the genus *Coladenia*, which species it resembles in wing shape and the presence of hyaline spots on both wings. Above uniform brown, rather paler beyond the discal spots, which are white and tend to have a black edging. Fore-wing above, the spots exactly as in *vitrea*, but in addition to the costal spot in space 11 above the cell spot there is a spot in space 10 nearer the apex and the spots in spaces 4 and 5 are more frequently present. Hind-wing above, the large cell spot is narrower than in *vitrea* and is inwardly concave; discal and subbasal spots smaller and variable, some may be absent: in the type the discal series is composed of 2 small spots in space 1 c, larger in spaces 2, 3 and 4, dots in spaces 5, 6 and 7: subbasal spots are, two in space 1 c, base of space 3 and near base of space 7. Cilia white in space 1 b on fore-wing and on hind-wing in spaces 1 c, 6 and 7. Below as above: on fore-wing two whitish suffused spots in space 1 b beyond the hyaline spots: clothing of thorax and palpi brown, but the base of each eye is conspicuously white. The uniform brown ground colour separates the species at once from *vitrea*. Fore-wing length 22 mm. Female exactly as the male.

3 ♂♂ from the type locality: 2 ♂♂ 3 ♀♀ Tien Mu Shan, Lingan, Chekiang, 1500 metres, June 1931.

### 2. **Coladenia sheila** sp. n.

Type ♂ West Tien Mu Shan, Chekiang, 1600 metres, 21.v.1932.

Closely resembles *vitrea* Leech. Above blackish-brown: fore-wing as *vitrea*, but the spots in spaces 4 and 5 are prominent (absent in one specimen), as also is the white shaded submarginal band. Hind-wing above, the white markings larger, particularly the discal ones, which are as wide as the large cell spot and more nearly conjoined thereto: the submarginal white shading absent, but with a narrow whitish submarginal band. Cilia white only at the tornus of the hind-wing in space 1 c and in spaces 4 and 5. Below as *vitrea*, but the white shading absent on the hind-wing except at the base of the cell and broadly along the dorsum to the middle of space 1 c. Clothing of body whitish, but the palpi yellow, differentiating the species at once from *vitrea*, where the palpi are grey tipped with black. Fore-wing length 21 mm.

4 ♂♂ from the type locality.

### 3. **Coladenia dan decora** subsp. n.

Type ♂ Tien Mu Shan, Chekiang.

Differs from all described forms of *dan* Fabricius in the paleness and prominence of the yellow markings on the hind-wing below: in other forms they are suffused dull ochreous. Above it resembles *fatih* Kollar the N. Indian form and has the same fore-wing length of 18 mm. as against 22 for the large W. China form, *dea* Leech.

13 ♂♂ 4 ♀♀ from the type locality.

### 4. **Carterocephalus abax patra** subsp. n.

Type ♂ Likiang, N. Yunnan, 15.viii.1935.

Identical with *abax* Oberthur except for the hind-wing below, which is evenly and closely overlaid with dull green scales: there is a longitudinal silver stripe from the base through the cell to the termen and a similar stripe in space 1 a; no trace of any of the spots from above showing through: in *abax* these spots are conspicuous and the silver stripes are barely traceable.

4 ♂♂ from the type locality.

### 5. **Carterocephalus alcina** sp. n.

Type ♂ Teng-Yueh-Ting, Yunnan: in British Museum.

Above as *abax* Oberthur but the markings are paler and smaller and while in *abax* there is a narrow yellow stripe above the fore-wing costal vein from the base nearly to the cell spot, in ♂ *alcina* the costal area here is entirely yellow and in the ♀ entirely dark or very dusky ochreous. Fore-wing below, as *abax*. Hind-wing below, quite different: ground colour ferruginous with large yellow spots: in addition to the spots that appear above, there are large submarginal spots in spaces 1 c, 2, 3, 6 and 7 and a large central and a smaller basal spot in space 7. Fore-wing length 12 mm. against 15 for *abax*.

Described from a series of 16 ♂♂ 1 ♀ from the type locality from the Joicey collection and standing in the British Museum over a MS. name, awaiting publication. 19 ♂♂ ♀♀ were obtained by Herr Höne at Likiang and Yunnanfu, N. Yunnan, in iii.1935.

### 6. **Carterocephalus ensis** sp. n.

Type ♂ Likiang, Yunnan, v.1935.

Generally resembles *flavostigma* Oberthur, figured in 1908, *Ann. Soc. ent. Fr.* **77**, pl. 5 fig. 5: the yellow markings are darker. Fore-wing above with a broad subbasal yellow band from the costa to the median vein: a broad discal band from the costa to vein 1, partially dislocated outwards at vein 2 and there is a dot in space 3 conjoined to the spot of the band in space 2: an apical band from vein 4 to vein 8, sharply dislocated in vein 6. Hind-wing above a central yellow area as in *flavostigma*, but outwardly extended towards the termen in spaces 4 and 5, the outer part being separated by a thick black line; no subapical spot in space 6 as in *flavostigma*. Fore-wing below, generally as *flavostigma*, but the apex all ferruginous, except for a small yellow apical dot. Hind-wing below variegated ferruginous and yellow, the base being yellow, also the apex, tornus and middle of the disc: cell spot absent: central band as in *flavostigma*, but the submarginal band differently placed and much reduced, the small spots in spaces 2, 3 and 4 being nearer to the central spot than to the termen, the spot in space 5 absent and the spots in spaces 6 and 7 small and equal. Fore-wing 13 mm.

19 ♂♂ from the type locality and Yunnanfu, Yunnan.

### 7. **Isoteinon lyso** sp. n.

Type ♂ Berg Ost Tien Mu Shan, Lingan, Chekiang, 1500 metres, 25.vii.1931.

A larger species than *lamprospilus* (Felder), fore-wing 22 mm. and with white hyaline spots on the hind-wing as well as the fore-wing. Above dark brown, basally greenish ochreous : cilia pale yellow, broadly chequered brown at ends of veins. Fore-wing above, with two nearly conjoined cell spots, large quadrate spot in space 1 b over vein 1 and not reaching vein 2, large spot in space 2 with its inner edge under the centre of the cell spot, smaller detached spot in space 3, dots much nearer the margin in spaces 4 and 5 and irregular apical spots in spaces 6 and 8. Hind-wing above, a large spot in spaces 4, 5, just beyond the end of the cell and a smaller widely separated spot near the base of space 2 below it. Fore-wing below, black, paler dorsally, costa and apex broadly overlaid greenish ochreous scales, spots as above, but the spot in space 1 b suffused. Hind-wing below entirely overlaid greenish ochreous scales, dorsum blackish and with conspicuous black spots at the base of space 7 and surrounding the discal spots on both sides.

4 ♂♂ 5 ♀♀ from Tien Mu Shan, Chekiang. A very remarkable new species.

### 8. **Ampittia dalai-lama jesta** subsp. n.

Type ♂ Tien Mu Shan, Chekiang.

Smaller than *dalai-lama* (Leech) from W. China : fore-wing length 11 mm. against 13 mm. for the latter. Markings on the fore-wing above much reduced and on the hind-wing absent : markings on the hind-wing below more complete and regular. The form *jesta* flies in Chekiang with *nanus* Leech and resembles it very closely, but *nanus* can be distinguished by the markings on the hind-wing below being white instead of yellow, while on the fore-wing below the spots in spaces 4 and 5 are present in *nanus* and absent in *jesta*. The genitalia of the two species differ only in the ventral aspect of the uncus : it is rounded in *nanus* and spear-shaped in *dalai-lama*.

10 ♂♂ ♀♀ Tien Mu Shan, Chekiang.

### 9. **Erionota alsatia** sp. n.

Type ♂ Likiang, N. Yunnan, 21.vii.1934.

Generally resembles *grandis* (Leech), but the fore-wing is more rounded, length 26 mm. On the fore-wing above, the white spots in the cell and space 2 are larger and contiguous, no apical spot and the ground colour at the apex is paler. Fore-wing below, apex and termen broadly paler. Hind-wing below uniform brown, not centrally paler as in *grandis*. Antennae in front white throughout.

7 ♂♂ ♀♀ from the type locality.

### 10. **Halpe zinnia** sp. n.

Type ♂ Likiang, N. Yunnan, 16.v.1935.

Appertains to the *aina-gupta* group characterised by the prominent double whitish pouch on the fore-wing above, below the origin of vein 2. Above silky dark brown, cilia grey. Fore-wing above with very pale yellow hyaline spots in spaces 2 and 3 as in *aina* de Nicéville and decreasing apical spots in spaces 6 and 7 : also a small upper cell spot. Fore-wing below, black, costa and apex dull ochreous. Hind-wing below dull ochreous, dorsum black and small obscure brown spots near the bases of spaces 2 and 3. Palpi

below dull yellow. Antennae chequered in front, dull yellow below. Fore-wing length 16 mm.

20 ♂♂ from the type locality.

### 11. **Ochlodes linga** sp. n.

Type ♂ Central China : in British Museum with a manuscript name awaiting description. Herr Höne obtained 56 ♂♂ ♀♀ at Tapaishan, Tsinling, S. Shensi and in Tien Mu Shan, Chekiang.

Above orange with broad dark terminal borders on the hind-wing. Fore-wing above with a narrow band, grey centred, and some dark shading below the cell and basal to the brand : the dark border penetrates in spaces 4 and 5 to the dark bar at the end of the cell, leaving an orange streak over the yellow sub-hyaline spot in space 3 and reaches the costa, thereby isolating the spots in spaces 6 to 9 : otherwise the sub-hyaline spots are as in *subhyalina* (Bremer and Gray), viz. those in spaces 2 and 3, the two cell spots and the apical spots, the spot in space 1 b being opaque. Hind-wing above the inner edge of the dark margin is crenulate : the broad central orange area reaching the base separates *linga* at once from *subhyalina*. Below greenish ochreous, becoming orange in the cell of the fore-wing : on the fore-wing there is a broad subtornal black area in spaces 1 b and 2, space 1 a being entirely black; also there is a dark area behind the pale spot in space 2, which extends to vein 1 and to the base of space 1 b. Hind-wing below traces of pale yellow discal spots in spaces 2, 3 and 6 : veins not darkened. Fore-wing length 16 mm. In the female the bases are darkened as in *subhyalina* from which it can be recognised by the spot in space 4 of the fore-wing overlapping the spot in space 3 and usually the spot in space 5 overlaps the spot in space 6.

### 12. **Ochlodes lanta** sp. n.

Type ♂ Lou Tse Kiang, W. China : in British Museum, where there are 7 ♂♂ from the type locality, 5 ♂♂ from Tsekou, W. China, and 1 ♂ 1 ♀ from Yunnan. Herr Höne obtained 4 ♂♂ from Likiang, N. Yunnan.

♂. Above dark brown with dull orange suffusion to the middle of the fore-wing and on the disc of the hind-wing : brand as usual, narrowly centred dull grey. Fore-wing above opaque double yellow spot in cell, spot in space 2 overlapped by a small spot at the base of space 3 : typically no apical spots or spot in space 1 b, but in some specimens a streak is present over vein 1 and apical spots in spaces 6 to 8. Hind-wing above typically without spots, present in spaces 2 and 3 in a few specimens. Fore-wing below entirely ochreous except for a dark area behind the spot in space 2 and below vein 2. Hind-wing below uniform ochreous, typically with a small dark spot in space 2 and an obscure dark dot in space 3, both of which may be absent. Fore-wing length 17 mm. ♀ above uniform dark brown, with pale yellow hyaline discal spots on the fore-wing, double cell spot, quadrate spot in space 2, small detached spot in space 3 and a dot in space 6 : below as ♂.

Generally resembles *O. subhyalina* (Bremer and Gray).

# ON SOME NEW SPECIES OF AFRICAN PTEROSTICHINI (COL. CARAB.). PART 1

By S. L. Straneo.

(*Parma, Italy.*)

Communicated by Mr. E. B. Britton, F.R.E.S.

Recently I received for determination from the Imperial Institute of Entomology, from the British Museum and from Dr. Fritz van Emden a considerable number of African Pterostichini. I found among them some new species and I give here their descriptions.

I have to thank Sir Guy A. K. Marshall and Mr. E. B. Britton and Dr. F. van Emden for the communication of this interesting material and for the duplicates generously presented to my collection.

**Abacetus profundestriatus** sp. n.

Long. 12·4 mm., max. lat. 5·0 mm. Colore nigro profundo, levissime iridescente, pedibus brunneo-rufescentibus, antennis parum clarioribus; marginibus pronoti interdum leviter rufescentibus. Caput sat parvum, oculis parvulis, mediocriter convexis, temporibus brevissimis, sed distinctis; sulcis frontalibus brevibus, fortiter divergentibus, primum porum supraocularem versus; antennis modice elongatis, basim pronoti articulo ultimo superantibus, articulis quarto et sequentibus pubescentibus. Pronotum sat amplumi subtrapezoidale; long. 3·3 mm.; max. lat. 4·2 mm.; lateribus antice fortiter rotundatis et constrictis (lat. ant. 2·5 mm.), postice parum convergentibus recte vel subsinuatim; (lat. bas. 3·6 mm.); maxima latitudine in media longitudine; margine antico modice excavato; angulis anticis sat acutis et prominentibus, apice rotundato; angulis posticis fere rectis, apice leviter rotundato; basi utrinque unisulcata, sulcis $\frac{2}{3}$ longitudinis pronot, attingentibus, rectis, fere non convergentibus, valde profundis; margine laterali parum spisso, canaliculo laterali angusto, profundo, fere aequalis latitudinis usque ad basim; basi non punctata, portione inter sulcos et marginem lateralem leviter impressa, non marginata; disco parum convexo, linea media impressa, profunda, praecipue in medio, et elongata, marginem anticum fere attingente. Elytra subovalia, modice elongata, valde convexa; long. 7·0 mm.; max. lat. 5·0 mm.; humeris rotundatis, margine basali sat curvatus humeros versus; striis profundissimis, levibus, non crenulatis; interstitiis fortiter convexis, tertio poro distincto in media longitudine praedito, septimo distincte sublato, quasi leviter costato; apice elytrorum sat acute rotundato. Subtus levis, non distincte punctatus, prosterno obtuso, processu non distincte marginato, plano; metepisternis parvis et brevibus, rugosis vel superficialiter subpunctatis, sternitibus ad latera rugosis et impressis, sternite anali maris poro singulo, feminae poris binis utrinque praedito. Pedes regulares, tibiis anticis calcare simplice non trifido, tarsis mediis et posticis supra striolatis; onychio glabro, subtus setis nullis praedito. Aedeagus ut in fig. 1 instructus. Microsculptura capitis isodiametrica, pronoti parum transversa, elytrorum transversa et angusta.

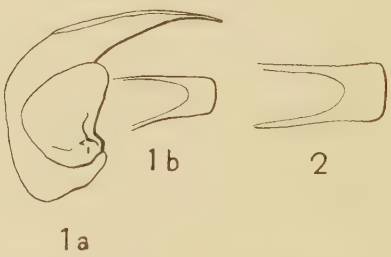
Habitat: Cameroon: Batouri District, lat. 3·75; long. 13·75 E.

Holotypus ♂ in British Museum; allotypus ♀ in coll. Straneo.

This new species is similar in aspect to *Abacetus uelensis* Burg., but the base of the pronotum is not margined, the shoulders are rounded not dentiform, the striae are less deep and the pronotum less convex.

**Abacetus vanemdeni** sp. n.

Long. 10·3 mm.; max. lat. 4·2 mm. Colore nigro profundo, elytris, epipleuris et femoribus fortiter azureo-iridescentibus, antennis pedibusque valde obscuris, fere nigris, palpis ferrugineis. Subtus subiridescens. Caput sat angustum et elongatum, oculis modicis, parum convexis, temporibus nullis vel fere nullis; sulcis frontalibus profundis, brevibus, sat divergentibus primum porum supraocularem versus; antennis sat robustis, distincte compressis, basim pronoti parum superantibus, articulis quarto et sequentibus pubescentibus. Pronotum subtrapezoidale, long. 2·8 mm.; max. lat. 3·6 mm.; lateribus antice fortiter rotundatis et constrictis, postice fere rectis et perparum angustatis; lat. anter. 2·2 mm., lat. bas. 3·4 mm.; angulis anticis leviter prominentibus, ad collum sat admotis, apice parum rotundato; angulis posticis rectis, apice leviter subtruncato-rotundato; basi utrinque unisulcata, sulcis linearibus, sinuatis et sat fortiter convergentibus antice; margine laterali levi, canaliculo valde profundo, non angusto, postice levissime dilatato; basi non punctata, fere recta, in medio leviter excavata, inter sulcos basales et marginem lateralem leviter marginata; disco convexo, praecipue antice, linea media vix distincta; portione inter sulcum basalem et canaliculum lateralem distincte impressa; impressione producta, quamvis attenuata, secundum canaliculum lateralem, usque ultra dimidiam longitudinem. Elytra subparallelo-ovalia, valde convexa; long. 6·1 mm.; max. lat. 4·0 mm.; humeris parum obtusis, fere quadratis; margine basali modice curvato humeros versus, lateribus parum dilatatis post humeros, dein subparallelis, usque ultra dimidiam longitudinem; striis profundis, levibus, interstitiis convexis, tertio poro, in dimidio basali posito, praedito; apice regularissime rotundato. Subtus proepisternis levibus, metepisternis longis, non distincte punctatis; prosterno longitudinaliter fortiter sulcato, processu distincte marginato; sternitibus primis subpunctato-rugosis; sternite anali maris poro singulo, feminae poris binis utrinque praedito. Pedes regulares, tibiis anticis calcare simplici, non trifido, tarsis posticis et mediis supra striolatis, onychio glabro, subtus setis nullis praedito. Microsculptura capitis isodiametrica, pronoti parum transversa, fere isodiametrica, elytrorum indistincta in interstitiis, sat crebra in striis. Aedeagi apex maris ut in figura 2 instructus.




Figs. 1–2.—1. Aedeagus of *Abacetus profundestriatus* sp. n. a, profile; b, apex; 2. Apex of the aedeagus of *Abacetus vanemdeni* sp. n.

Habitat: Lake Victoria: Ins. Ukerewe (*P. A. Conrads*): 3 examples.

Holotypus ♂ et paratypus ♀ in coll. van Emden: allotypus ♀ in coll. Straneo.

This new species is rather similar to *Abacetus procax* Tschit., but at once distinguishable by the larger size, antennae and legs darker, first segment of antennae blackish (in *procax* ferrugineous) etc. It is also nearly allied to *A. pavoninus* Péring., but the pronotum is less rounded at the sides and less constricted behind.

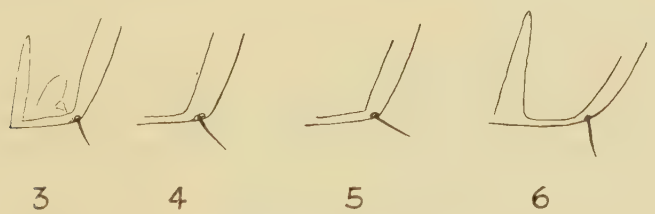
**Abacetus major** sp. n.

Long. 10·6 mm.; max. lat. 4·0 mm. Colore brunneo, interdum piceo, fortiter iridescente, palpis, antennis, pedibus et portione inferiore corporis omnino ferrugineis. Caput sat angustum et elongatum, oculis sat amplis, modice convexis, temporibus nullis, sulcis frontalibus brevibus, primum porum versus divergentibus; antennis sat subtilibus, articulo ultimo basim pronoti superantibus, articulis 4° et sequentibus pubescentibus. Pronotum subtrapezoidale; long. 2·8 mm.; max. lat. 3·5 mm.; lateribus regulariter et sat fortiter rotundatis, antice quam postice magis constrictis; lat. ant. 2·1 mm.; lat. bas. 2·6 mm.; margine antico sat fortiter arcuatim excavato; angulis anticis acutis, a collo sat amotis, apice rotundato; posticis obtusis, late rotundatis, ut in fig. 2 instructis; margine laterali subtili, canaliculo antice perangusto, leviter et gradatim dilatato usque ad basim; basi sulco angusto et sat elongato utrinque praedita, inter sulcos leviter punctato-rugosa, intra sulcos et canaliculum lateralem leviter convexa, non impressa; disco modice convexo, linea media subtili sed bene determinata. Elytra ovalia, basi pronoti bene adhaerentia; long. 5·9 mm.; max. lat. 4 mm.; humeris parum prominentibus, rotundatis, margine basali sat fortiter curvato humeros versus; lateribus post humeros gradatim dilatatis, maxima latitudine in media longitudine; apice regularissime rotundato. Microsculptura capitis isodiametrica, pronoti transversa creberrima, elytrorum indistincta. Pedes regulares; tibiis anticis calcare simplici, non trifido; tarsis mediis et posticis supra striolatis; onychio glabro, subtus setis nullis praedito.

Habitat: N.W. Rhodesia: Mwenga (27.40 E., 13 S.) (*H. C. Dollman*): some examples ♀.

Holotypus et paratypi in British Museum; allotypus et paratypus in coll. Straneo.

This new species belongs to the group of *A. nitens* Tschit., *dilucidus* Péring., *parallelicollis* Péring., *pavoninus* Péring. etc., but it is easily recognisable by the size and by the shape of the lateral channel and posterior angles of the pronotum, as figs. 3–6 show.




Figs. 3–6.—Sketches of the posterior angles of the pronotum of some *Abacetus*. 3, *A. parallelicollis* Péring.; 4, *pavoninus* Péring.; 5, *dilucidus* Péring.; 6, *major* sp. n.

**Abacetus pseudoflavipes** sp. n.

Long. 8·0 mm.; max. lat. 3·2 mm. Colore nigro nitido, elytris interdum levissime brunnescentibus, modice iridescentibus; antennis, palpis pedibusque omnino rufoferrugineis sat claris. Caput sat robustum, oculis modice amplis, convexis, temporibus nullis; sulcis frontalibus brevibus, modice sinuatis, fortissime divergentibus primum porum supraocularem versus, rugosis; antennis sat longis et subtilibus, articulo ultimo basim pronoti superantibus, articulo quarto et sequentibus pubescentibus. Pronotum transversum, subcordiforme; long. 2·0 mm., max. lat. 2·8 mm.; lateribus antice fortiter rotundatis, postice minus curvatis et leviter subsinuatis; lat. anter. 1·7 mm.; lat. bas. 2·1 mm.; angulis anticis parum vel modice prominentibus, posticis obtusis, dente parvo apicali

instructis; margine antico fere recto; canaliculo laterali undique sat angusto et poris binis regularibus praeditis; basi utrinque sulco singulo, sat lato et profundo, fere recto, praedita, non punctata, levissime rugosa prope sulcos, inter sulcos et marginem lateralem convexa, non impressa, et marginata; disco parum convexo, linea media sat lata et profunda. Elytra ovalia, convexa, disco medio fere plano, id est declivio apicali et laterali forti et abrupto; long. 4·8 mm.; max. lat. 3·2 mm.; lateribus post humeros fortiter curvatis, dein subparallelis; maxima latitudine in media longitudine; humeris obtusis, sat rotundatis, margine basali modice curvato latera versus; striis profundis, finissime crenulatis, interstitiis permodice convexis, tertio poro praedito ad $\frac{2}{3}$ longitudinis posito; apice elytrorum sat regulariter rotundato. Subtus levis, subiridescens, non punctatus; prosterno plano, non sulcato, processu fortiter marginato, metepisternis longis, antice et intus fortiter sulcatis; sternitibus levibus, primis ad latera leviter rugosis; sternite anali maris poro singulo, feminae poris binis utrinque instructo. Microsculptura capitis isodiametrica, pronoti transversa subtilis, elytrorum transversa, crebra. Pedes regulariter elongati, tibiis anticis calcare simplici, non trifido; tarsis mediis et posticis supra non striolatis, extus sulcatis; onychio prima visione subtus glabro; sed visione laterali, *contra lucem*, setis binis *tenuissimis et brevibus* plerumque instructo.

Habitat: N.W. Rhodesia: Kashitu; Mwenga (*H. C. Dollman*): many examples.

Holotypus ♀ et paratypi in British Museum, allotypus et paratypi in my collection, paratypus in S. African Museum, Cape Town.

Similar in general aspect to *A. flavipes* Thoms., *A. flavipes* var. *severini* Tschit., *A. consors* Tschit., this new species is very distinct in the very flat disc of the elytra and chiefly in the structure of the onychium; it bears underneath only two very fine and very short setae, which can be seen only with difficulty and by lateral observation against a strong light; sometimes the setae are lacking. The onychium therefore seems, in every case, to be glabrous.

### **Abacetus zambezianus** Péring. var. **obscurior** var. n.

A forma typica differt colore virescente potius quam aeneo-aurato, et oculis parum convexis.

Habitat: N. Rhodesia: Mwenga (*H. C. Dollman*): 5 examples.

Holotypus ♂ in the British Museum, paratypus in coll. Straneo.

The differences between the typical form and this new variety are constant, but the species is the same; I have seen an example, from the same locality, intermediate between the typical form and the var. *obscurior*.

### **Abacetus validicornis** sp. n.

Long. 5·5 mm.; max. lat. 2·0 mm.; colore nigro, elytris plus minusve aeneo-virescentibus; antennis brunneo-nigrescentibus, articulis duobus basalibus et basi 3$^{i}$ et 4$^{i}$ ferrugineis, femoribus nigris, tibiis partim ferrugineis, tarsis ferrugineis. Caput regulare, oculis sat amplis, mediocriter convexis, sulcis frontalibus sinuatis, modice divergentibus, primum porum supraocularem vix superantibus; antennis robustis, elongatis, articulis tribus ultimis basim pronoti superantibus, articulis 4–11 sat dilatatis, compressis et robustioribus, articulis 4° et sequentibus pubescentibus. Pronotum subtrapezoidale, parum convexum, long. 1·2 mm.; max. lat. 1·5 mm.; lateribus sat regulariter rotundatis fere usque ad basim; ante basim cum sinuositate levi; angulis anticis obtusis, non prominentibus, rotundatis, posticis modice obtusis, apice dente parvo praedito; canaliculo laterali undique angusto, poris binis regularibus praedito; basi utrinque sulco singulo fere recto et mediocriter elongato praedita, punctis raris sed profundis et conspicuis notata, fere recta; disco

parum convexo, linea media subtili. Elytra sat parallela, parum convexa, elongata; long. 3·4 mm.; max. lat. 2 mm.; lateribus post humeros modice dilatatis, dein parallelis usque ultra dimidiam longitudinem; humeris rotundatis, nec angulatis, margine basali fere recto; striis mediocriter profundis, finissime crenulatis; interstitio tertio poro, in dimidia longitudine posito, praedito; apice sat acuto. Subtus omnino levis, prosterno mediocriter sulcato longitudinaliter, processu distincte marginato; metepisternis longis; sternite anali ♂ puncto singulo utrinque praedito. Microsculptura undique isodiametrica, elytrorum latior. Pedes regulares, tibiis anticis calcare simplici, non trifido, tarsis mediis et posticis supra non striolatis, extus leviter sulcatis, onychio subtus setis subtilibus praedito.

Habitat: KENYA: Nairobi 2 examples (*Dr. Van Someren*).

Holotypus ♂ in British Museum, allotypus in coll. Straneo.

This species is nearly allied to *A. confinis* (Boh.) (= *discrepans* Péring.) and *A. minusculus* Stran. (1938, *Ann. Mus. Genova*, **58**: 218); but in *A. confinis* (Boh.) pronotum and elytra are distinctly more convex, the pronotum is more constricted towards anterior angles, the antennae are not evidently thickened; and *A. minusculus* Stran. is smaller, with the antennae slender; the elytra are less metallic.

### **Abacetus sinuaticollis** sp. n.

Long. 4·5 mm.; lat. 1·75 mm. Colore nigro, saepe leviter brunnescente, elytrorum apice, parva portione apicali suturae, epipleuris ferrugineis; sternitibus tribus ultimis plus minusve ferrugineis; pedibus ferrugineis; antennis ferrugineis, articulis 4–9 plus minusve infuscatis. Caput sat angustum et elongatum, oculis mediocriter amplis, parum convexis, temporibus nullis; sulcis frontalibus modice sinuatis, parum ultra primum porum supraocularem se extendentibus; antennis sat subtilibus, articulis 4° et sequentibus pubescentibus. Pronotum subcordiforme, long. 1·1 mm.; max. lat. 1·4 mm.; lateribus antice et postice fortiter constrictis, ante basim fortiter sinuatis, dein fere parallelis; lat. ant. et lat. bas. 0·80–0·82 mm.; angulis anticis non prominentibus, ad collum adhaerentibus, posticis rectis; canaliculo laterali angusto, lineari, punctis binis regularibus instructo; basi utrinque sulco sat brevi, modice convergente, mediocriter impresso, notata, sat fortiter et crasse punctata; disco modice convexo, linea media longa, valde distincta, quamvis subtili et mediocriter impressa. Elytra parallela, sat convexa; long. 2·7 mm.; max. lat. 1·75 mm.; lateribus post humeros sat rotundatis, dein parallelis usque ad $\frac{2}{3}$ longitudinis; humeris omnino rotundatis, margine basali sat fortiter curvato humeros versus, striis profundis, finissime, fere indistincte crenulatis; interstitiis modice convexis, tertio puncto prope mediam longitudinem praedito; apice regulariter rotundato. Subtus omnino levis, non punctatus, prosterno fortiter sulcato longitudinaliter, processu fortiter marginato, metepisternis longis; sternite anali maris puncto singulo, feminae punctis binis utrinque praedito. Microsculptura capitis et elytrorum isodiametrica, pronoti parum transversa. Pedes regulares, tibiis anticis calcare simplici, non trifido, tarsis mediis et posticis supra non striolatis, posticis extus leviter sulcatis, onychio subtus setis subtilibus praedito.

Habitat: N.W. RHODESIA: Lukanga (*H. C. Dollman*): many examples.

Holotypus ♂ et paratypi in British Museum; allotypus et paratypi in coll. Straneo.

Very near to *A. confinis* (Boh.) but easily recognisable by the strongly sinuate sides of the pronotum and the more slender form.

### **Abacetus brunneus** sp. n.

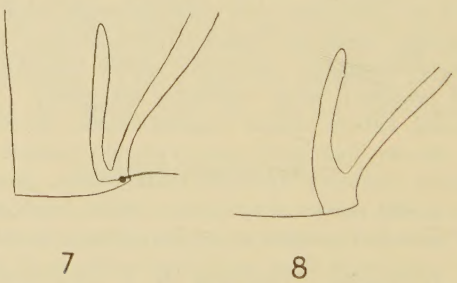
Long. 4·9 mm.; max. lat. 1·8 mm.; colore brunneo, plus minusve obscurato, antennis, palpis pedibusque omnino flavo-ferrugineis. Caput parum elongatum, leve, non punctatum;

oculis sat amplis et convexis, temporibus nullis, sulcis frontalibus modice sinuatis, usque ad secundum porum supraocularem et ultra productis; antennis sat subtilibus, articulo ultimo basim pronoti superantibus; articulis 4° et sequentibus pubescentibus. Pronotum subtrapezoidale, parum convexum, long. 1·3 mm.; max. lat. 1·6 mm.; lateribus antice regulariter et modice arcuatis, postice fere recte convergentibus vel levissime subsinuatis; lat. ant. 1·1 mm.; lat. bas. 1·2 mm.; angulis anticis perparum prominentibus, rotundatis, parum obtusis; posticis obtusis, dente parvo apicali praeditis; margine anteriore fere recto vel levissime excavato; margine laterali ante basim leviter sed distincte crenulato (4–5 parvis denticulis); canaliculo laterali sat angusto et undique uniformi latitudine, poris setigeris binis regularibus praedito; basi utrinque unisulcata, inter sulcos fortiter et grosse punctata, fere recta, ad latera marginata; sulcis basalibus angustis, modice impressis, antice distincte convergentibus; disco modice convexo, linea media subtili. Elytra valde parallela, modice convexa, long. 2·8 mm.; max. lat. 1·8 mm.; lateribus post humeros permodice dilatatis, dein parallelis usque ad ¾ longitudinis; humeris modice rotundatis, margine basali parum curvato, striis sat profundis, finissime crenulatis; interstitiis antice modice convexis, postice planis, interstitio tertio poro in media longitudine praedito; apice leviter acuto. Subtus omnino levis, non punctatus; prosterno antice sulco longitudinali lato et profundo, postice explanato, praedito; processu fortiter marginato; sternitibus levibus, sternite anali maris puncto singulo, feminae punctis binis utrinque praedito. Pedes regulares: tibiis anticis calcare simplici, non trifido; tarsis mediis et posticis supra non striolatis, posticis extus leviter sulcatis, onychio subtus setis subtilibus praedito. Microsculptura undique indistincta.

Habitat: N. Nigeria: Azare (*Dr. Ll. Lloyd*) 14 examples (including type); Côte d'Ivoire, Sassandra (*C. Alluaud*) 1 example.

Holotypus ♂ et paratypi in British Museum: allotypus et paratypi in coll. Straneo; paratypus in Muséum National, Paris.

Belongs to the group of *A. aeneus* Dej., *mouffleti* Chaud., *aeneobus* Chaud., *confinis* (Boh.), *minusculus* Stran., *validicornis* Stran. etc.; but may be distinguished at once from those species by the colour, dark brown without any metallic tinge, and yet more by the crenulate sides of the pronotum, near base. The example from Sassandra is only a little darker, but in other respects agrees completely with the examples from Azare.



7 8

Figs. 7–8.—Sketches of the posterior angles of the pronotum of *Abacetus senegalensis* Dej. (fig. 7) and *unisetosus* sp. n. (fig. 8).

### **Abacetus unisetosus** sp. n.

Long. 5·7 mm.; max. lat. 2·0 mm. Colore nigro, modice nitido, margine apicali et extremitate suturae elytrorum leviter rufescentibus; sternitibus ultimis et metasterno plus minusve rufescentibus vel ferrugineis; antennis, palpis pedibusque ferrugineis,

praeter articulos 3$^{um}$ et 4$^{um}$ antennarum nigrescentes, et genua plus minusve infuscata. Caput sat robustum, oculis amplis et convexis, sulcis frontalibus sat brevibus, latis et profundis, divergentibus et sinuatis, primum porum supraocularem superantibus; antennis valde elongatis et subtilibus, articulis quattuor ultimis basim pronoti superantibus, articulis 4° et sequentibus pubescentibus. Pronotum fortiter cordatum, basim versus strangulatum; long. 1·2 mm.; max. lat. 1·4 mm.; lateribus fortissime rotundatis, et fortissime constrictis antice et postice; ante basim abrupte sinuatis dein parallelis; lat. ant. 0·8 mm.; lat. bas. vix 0·7 mm.; angulis anticis non prominentibus, ad collum adhaerentibus; angulis posticis rectis; basi non punctata, depressa et rugosa, utrinque unisulcata; sulcis parum obliquis, marginem lateralem attingentibus ante basim; canaliculo laterali angustissimo, lineari, poro setigero anteriore tantum praedito (fig. 8); disco convexo, sulco medio longitudinali lato et profundo. Elytra parallela, convexa; long. 3·3 mm.; lat. 2 mm.; post humeros fortiter et abrupte dilatata, dein parallela; humeris modice determinatis, apice rotundato, obtusis; margine basali fere recto; striis profundis, non punctatis, interstitiis modice convexis, tertio poro in media longitudine praedito; apice sat acuto. Subtus omnino levis, non punctatus; prosterno fortiter longitudinaliter sulcato, processu plano, fortissime marginato; metepisternis longis, intus fortissime sulcatis, antice non sulcatis; sternite anali maris utrinque unipunctato, feminae bipunctato. Pedes elongati, tibiis anticis calcare simplici, non trifido; tarsis mediis et posticis supra non striolatis, posticis extus leviter sulcatis; onychio subtus glabro. Microsculptura undique isodiametrica.

Habitat: Lake Victoria: Ukerewe Ins. (*P. A. Conrads*).

Holotypus ♂ et 4 paratypi in coll. Van Emden: allotypus et 2 paratypi in coll. Straneo.

This species was labelled "senegalensis var. unisetus nov." in coll. Van Emden, but I think it must be considered a distinct species, though closely allied to *A. senegalensis* Dej., of which I have seen some examples from Bolama (Port. Guinea, leg. *L. Fea*) in the collections of the Mus. Civ. Genova. In *Abacetus unisetosus* the antennae are longer, with the 3rd and 4th segments blackish; the pronotum is distinctly less wide than in *senegalensis*, the basal sulci are different (figs. 7, 8); the want of the seta in the posterior angles of the pronotum is a character of the highest interest and *A. unisetosus* is the only African species known to me which presents such a character. The whole body of *A. unisetosus* is also more slender than that of *A. senegalensis*.

### **Abacetus germanus** var. **nigerianus** var. n.

A forma typica differt elytris minus convexis, genubus magis infuscatis et statura minore: palporum articulo apicali non vel tantum levissime infuscato.

The size of this variety is the same as that of a new variety of *A. germanus* (in the press in *Ann. Mus. Civ. Genova*): var. *nigerianus* differs from this variety by the elytra being less acuminate and less convex towards apex and by the last segment of the palpi not or very little infuscate.

Habitat: N. Nigeria: Azare (*Dr. Ll. Lloyd*): 16 examples.

Holotypus ♂ et paratypi in British Museum; allotypus et paratypi in coll. Straneo.

### **Abacetus pygmaeus** Boh. var. **atripes** var. n.

A forma typica differt pedibus obscuris, femoribus nigrescentibus, tarsis et tibiis obscure-rufescentibus, colore pronoti et elytrorum nigrescente, fere non metallico.

Habitat: N. Rhodesia: Namwala (*H. C. Dollman*) et N.W. Rhodesia (sine alia nota) (*H. C. Dollman*): many examples.

Holotypus ♂ et paratypi in British Museum; allotypus et paratypi in coll. Straneo.

The examples of *Abacetus pygmaeus* Boh. belonging to this variety are very similar in general aspect to *A. metallescens* Tschit., but in *pygmaeus* var. *atripes* the pronotum is less constricted and less abruptly and strongly sinuate before the basal angles; the colour is less nitid, blackish rather than aeneous-virescent.

### **Abacetus fuscorufescens** sp. n.

Long. 6·7 mm.; max. lat. 2·6 mm. Colore brunneo-rufescens, plerumque obscurissimo; interdum elytris nigro-piceis; femoribus nigro-rufescentibus, tibiis obscuris, praeter genua clariora, tarsis ferrugineis, antennis brunneo-ferrugineis, articulis tribus basalibus clarioribus, palpis omnino ferrugineis. Caput sat robustum et elongatum, oculis sat amplis, mediocriter convexis, temporibus fere nullis; sulcis frontalibus brevibus, divergentibus, primum porum supraocularem non attingentibus; antennis longis subtilibusque, articulis tribus ultimis basim pronoti superantibus; articulis quarto et sequentibus pubescentibus. Pronotum subcordiforme, sat convexum; long. 1·6 mm.; lat. 1·8 mm.; lateribus regulariter rotundatis per ¾ longitudinis, dein recte convergentibus; lat. ant. 1·2 mm.; lat. bas. 1·3 mm.; angulis anticis ad collum sat admotis, parum obtusis, parum prominentibus, vertice non vel perparum rotundato; angulis posticis obtusis, dente parvo apicali instructis; margine laterali angusto, praecipue antice, poris setigeris binis regularibus praedito; basi punctis parum crebris et parum profundis, sed crassis, instructa, utrinque unisulcata, sulcis sat brevibus et parum convergentibus; disco sat convexo, linea media sat fortiter impressa, praecipue postice. Elytra subparallelo-ovalia; long. 4·1 mm.; max. lat. 2·6 mm.; lateribus post humeros sat rotundatis, dein levissime dilatatis usque ad maximam latitudinem, parum post dimidiam longitudinem positam; humeris late rotundatis, margine basali modice curvatum humeros versus; striis sat profundis, levibus; interstitiis sat convexis, tertio poro in media longitudine praedito; apice elytrorum gradatim rotundato. Subtus levis, non punctatus, prosterno fortiter sulcato longitudinaliter processu fortiter marginato; metepisternis longis, intus et antice sulcato-marginatis. Pedes regulares, tibiis anticis calcare simplici, non trifido; tarsis mediis et posticis supra non striolatis, extus sulcatis; onychio subtus glabro, non setoso. Microsculptura capitis isodiametrica, pronoti parum transversa, elytrorum transversa.

Habitat: N.W. Rhodesia: Lukanga (*H. C. Dollman*): 13 examples.

Holotypus ♂ et paratypi in British Museum; allotypus et paratypi in coll. Straneo.

This species is rather closely allied to *A. vertagus* Péring. which is at once distinct by the wholly impunctate base of the pronotum; it looks also like *A. inopinus* Péring. but *fuscorufescens* is larger, the colour very different etc.